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Interfacing the USQ Process with DOE Standard 1189

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Disclaimer

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Questions Raised

EFCOG USQ Subgroup teleconferences and informal discussions at DOE-HQ during development of DOE-STD-1189 included:

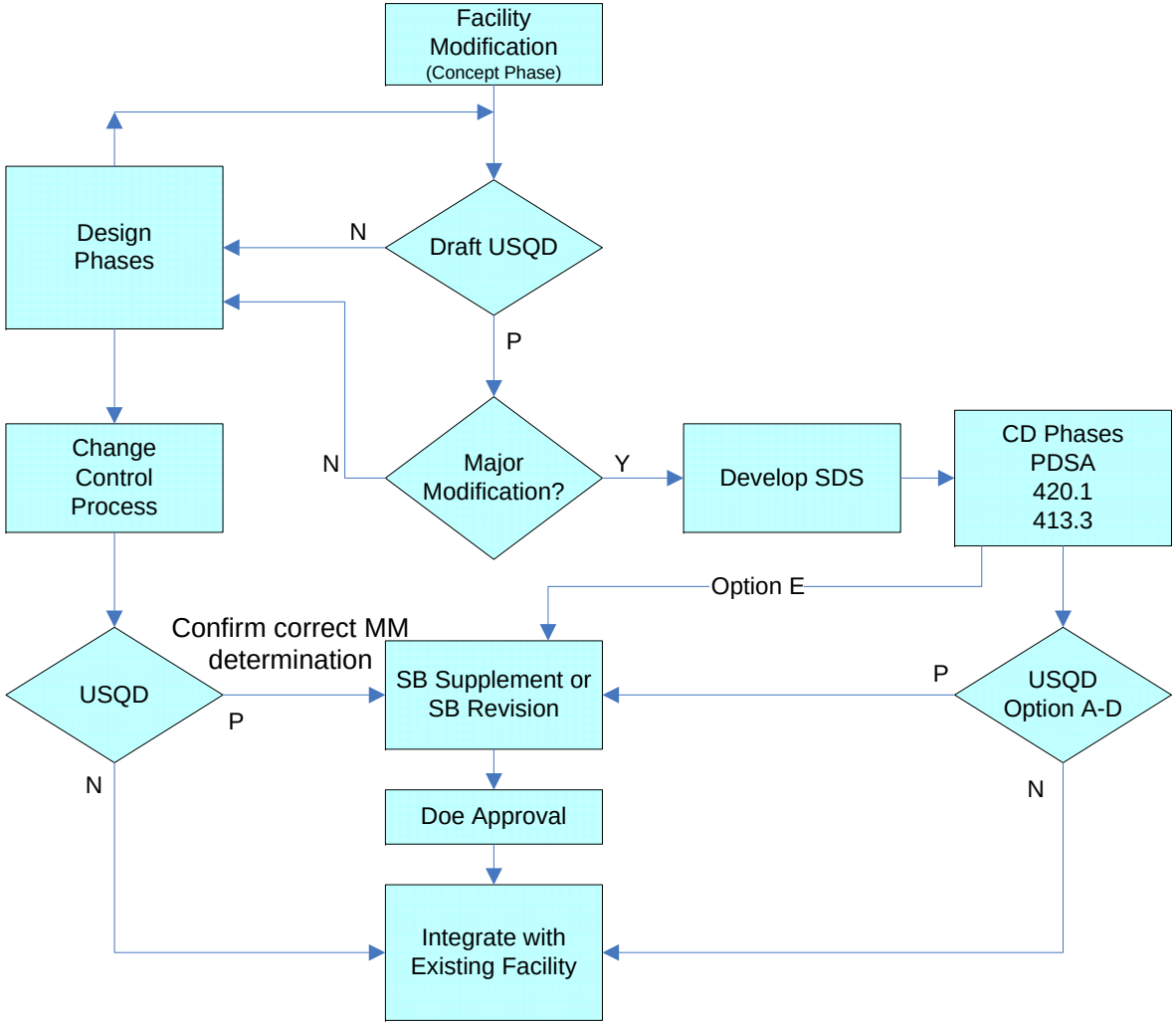
- How should the USQ Process be involved with projects?
  - as entry condition to MM determinations?
  - not at all for MM projects?
  - for both non-MM and MM projects?
  - If for MM projects, what scope and when to apply?

Early Application

- USQ Process as a Major Modification Screen?
  - minimal information available early
  - use just prior to MM determination
  - not enough information for a signed USQD
  - perform a draft USQD on available info
  - draft USQD may be applied during design phases as needed
  - final USQD(s) still required before implementation

Early Application

Facility Modification Process



Other Options

- Five options surfaced for downstream of MM determinations, application varies across sites:
  A. prepare a positive USQD/safety basis supplement covering overall change – additional USQDs/Screenings as needed
  B. prepare system specific USQDs
  C. prepare room specific USQDs
  D. prepare a positive USQD and safety basis supplement covering entire change - no subsequent USQDs/Screenings
  E. Prepare a safety basis supplement covering entire change – no initial USQD, no subsequent USQDs

Other Options – Option A

- Combination of:
  - a positive USQD,
  - a safety basis supplement reflecting SB impacts of the overall change, and
  - subsequent negative system specific USQDs/Screenings/Categorical Exclusions on specific physical changes implementing that overall change.

Other Options – Option A

Positive Aspects – USQD/SB Supplement Overall & USQDs

- Significant experience with this approach works well.
- Minimizes USQ workload.
- Once DOE approves up front, risk is minimized.
- Most of the legwork on the final state already complete (information organized while preparing the PDSA). Still need to assess construction details.
- Use of new controls already an anticipated cost and planned
- Phased USQD workload - subsequent CatXs/Screenings/negative USQDs as work proceeds
- Can proceed with small, specific USQDs (Options B and C) during preparation of the overall positive USQD/safety basis supplement

Other Options – Option A

Negative Aspects – USQD/SB Supplement Overall & USQDs

- Lessons learned indicate problematic situations have occurred when DOE did not support additional changes:
  - The change was not described in sufficient detail initially and/or
  - The safety basis supplement did not allow flexibility to allow negative USQDs for minor changes
  - The contractor continued to revise the scope of the change later, after DOE approval. - can be a serious threat to meeting schedule.
- For Option A to work effectively, the contractor should thoroughly consider:
  - scope of the change,
  - describing the scope effectively in the positive USQD/safety basis supplement, and
  - sticking to it after DOE approval.

Other Options – Option B

- Prepare system specific USQDs

  No SB Supplement

  – combination of several system specific USQDs prepared to cover system interfaces.

  – USQDs could be prepared for:

    - piping systems,
    - ventilation systems, and/or
    - electrical systems, etc.

Other Options – Option B

Positive Aspects - System Specific USQDs

- Quarantines issues and allows work to proceed efficiently. Any positive USQDs are focused only on the affected system and allows work to proceed forward on the other systems.

Other Options – Option B

Negative Aspects - System Specific USQDs

- May require more individual USQDS than option A.
- Positive USQDs may occur, delaying the entire project while waiting for DOE's approval. In contrast, Option A obtains DOE approval up front, reducing or eliminating such risk.
- May involve potential PAAA issues if procurement had already taken place.

Other Options – Option C

- Prepare room specific USQDs

  No SB Supplement

  – Many project changes occur in specific locations, USQDs could focus on those locations.

  – Combination of USQDs by room/location to cover project

Other Options – Option C

Positive Aspects - Room Specific USQDs

- As discussed in Option A and B, quarantining issues minimizes risk and allows other aspects of the work to proceed forward.
- Locations selected could match SB location boundaries

Other Options – Option C

Negative Aspects - Room Specific USQDs

- This option may require more individual USQDS than options A or B.
- Changes in several rooms may cross room boundaries may require changes to overall systems (ventilation, electrical, etc.).
- Positive USQDs may occur, delaying the entire project while waiting for DOE's approval. In contrast, Option A obtains DOE approval up front, reducing or eliminating such risk.

Other Options – Option D

- Combination of:
  - a positive USQD,
  - a safety basis supplement on the overall change, and
  - no subsequent negative system specific USQDs/Screenings/Categorical Exclusions
- Requires mature project control process and substantially more design knowledge than typical for most projects.

Other Options – Option D

Negative Aspects – USQD/SB Supplement Overall & No USQDs

- Based on previous DOE decisions at several sites, there is a high probability that a local DOE field office may not approve this approach.
- Based on lessons learned from HS-64 and CDNS audits, there is a high probability that this approach is not sustainable.
- Submitting all aspects of the change, including all construction work planning to the USQ process may simply be overwhelming and unattainable. It is extremely difficult to know all the installation details this early in the work, and eventually this approach slips into Option A. Thus Question D.1.
- Scope changes are show stoppers.
- Lessons learned indicate situations when DOE did not support the change because the change was: 1) not described in sufficient detail initially and/or 2) the contractor continued to revise the scope of the change later, after DOE approval. This is a problematic situation and can be a serious threat to meeting schedule.

Other Options – Option D

Question – USQD/SB Supplement Overall & No USQDs

- Would subsequent negative USQDs/Screenings be required to implement the change after approval of the positive USQD/SB Supplement? If so, this slips into Option A.

Other Options – Option E

- Aside from EFCOG Teleconference discussions, one site suggested:
  - No initial USQD (other than an early draft),
  - A safety basis supplement containing the overall change and all construction aspects, and
  - No implementation USQDs/Screens, only subsequent USQDs/ Screenings/ Categorical Exclusions for changes to project.
  - Essentially the same as Option D except no USQD is performed to identify the USQ. The USQ is determined either from the early draft USQD or from the design process.

Other Options – Option E

Positive Aspects – SB Supplement only

- Very efficient – minimizes USQDs
- Positive/negative USQDs are germane only to changes to the submitted project.

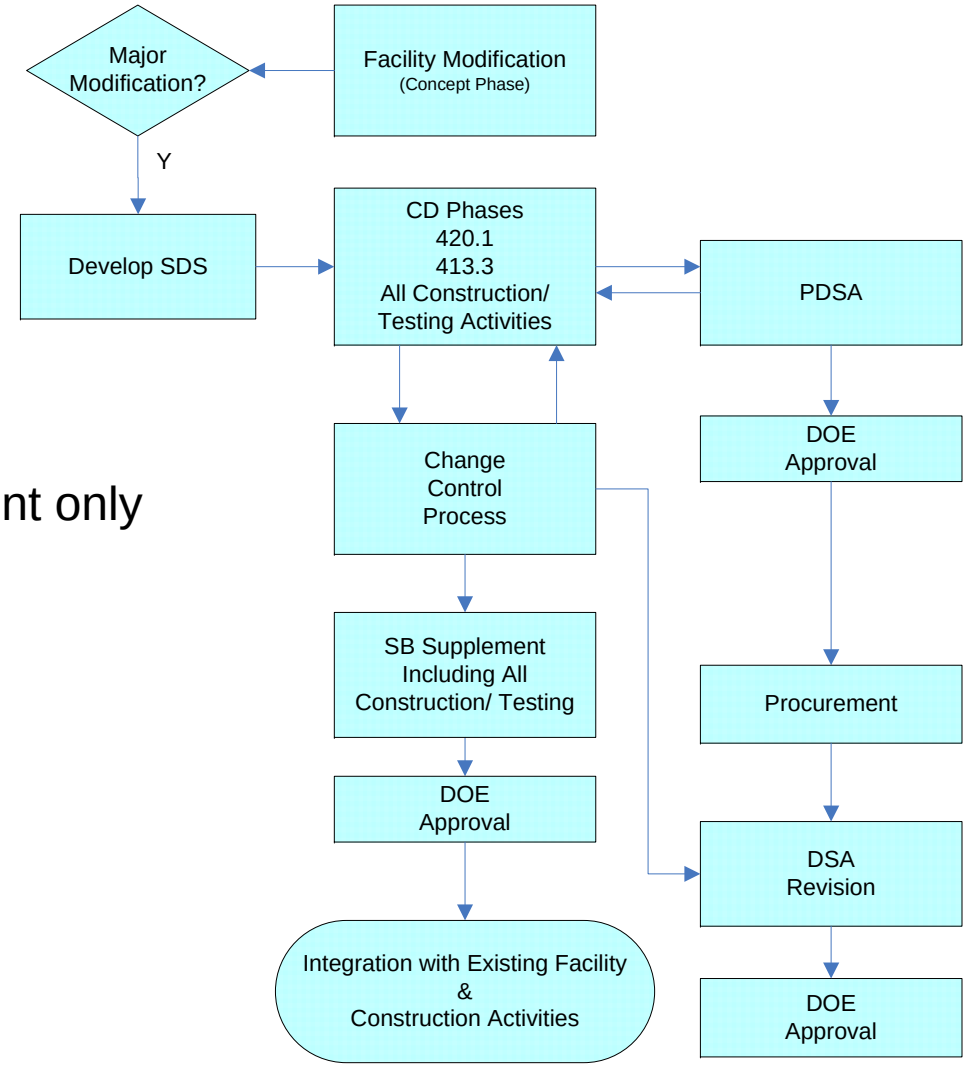
Other Options – Option E

Negative Aspects – SB Supplement only & No USQDs

- A change in the project most likely requires a change to the SB supplement.
- A SB supplement containing the entire change is extremely more complex than a SB supplement containing only required SB changes.
- Increased complication affects SB training, USQDs, and every day facility operations.
- Submitting all aspects of the entire change, including all construction work planning, to DOE, limits project flexibility.
- Others same as Option D

Other Options – Option E

SB supplement only
& No USQDs



Other Options – Comparison

Attribute	Option A	Option B	Option C	Option D	Option E
Contractor History/Experience	Most common/ Favorable	Some Experience/ Favorable	Some Experience/ Favorable	Some Experience/ Unfavorable	Very Little Experience/ Mixed
Efficiency of USQ Process	2nd Most Efficient	3rd Most Efficient	4th Most Efficient	Most Efficient	Most Efficient
Project Flexibility	Very Flexible	Very Flexible	Very Flexible	Not Flexible	Not Flexible
Audit Issue Liability	Low	Moderate	Moderate	High	Moderate

Conclusions

- The majority of participants in EFCOG USQ teleconferences and informal discussions at DOE-HQ preferred Option A
- Raised other questions including what's the scope of a SBS?
- Also, participants generally agreed:
  - USQDs are prepared against the current existing facility safety basis (e.g., DSA, TSR) not the PDSA
  - the USQ process (10CFR830.203) and PDSA/major modification processes (10CFR830.206) are separate and the PDSA is not part of the safety basis

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